

REMARKS

Claims 1-48 are pending in the application. Claims 10 and 39 have been canceled without prejudice or disclaimer. Claims 1, 5, 11-15, 26, 30 and 34 have been amended. New claims 46-48 have been added. No new matter has been added. Reconsideration of the claims is respectfully requested.

Information Disclosure Statement

Information disclosure statements were submitted in this case on June 17, 2002; August 26, 2002; and April 4, 2003. Receipt of these IDSs, and acknowledgment that the references cited therein have been considered, have not yet been received. The Examiner is respectfully requested to forward initialed copies of the 1449 forms submitted with these IDSs.

Claim Objections

Claims 5 and 30 are objected to for informalities. These claims have been amended to remove the informalities.

Provisional Double Patenting Rejections

Claims 1, 26 and 34 were provisionally rejected under the judicially created doctrine of obvious-type double patenting as being unpatentable over the claims 1 and 19 of copending application 10/015,151. Claims 20-21 were provisionally rejected over claims 20 and 29 of the same copending application

Claims 1-15 and 39 were provisionally rejected under the judicially created doctrine of obvious-type double patenting as being unpatentable over the claim 17 of copending application 09/871,230.

Applicant notes that these double patenting rejections are provisional. These rejections will not be addressed until one of the applications, either the applications used as the basis for the rejections, or the present application, is issued as a patent. At that time, Applicant will be able to properly address the provisional double patenting rejection according to MPEP § 804. Applicant does not acquiesce to the reasons stated for the provisional double patenting rejections.

Rejections under 35 U.S.C. § 102

Claims 1-5, 7, 16, 19-21, 26-30, 34, 37-38, and 40 are rejected under 35 U.S.C. §102 (e) as being anticipated by Ackerman et al. (U.S. Patent 6,186,937) (Ackerman).

Ackerman teaches a method and device for obtaining a desired phase of optical characteristic from a Fabry-Perot (FP) etalon using multiple optical detectors (abstract). In particular, Ackerman teaches an optical signal (230) from a light source (200) being collimated in a collimating lens (300). The collimated optical signal is incident on the FP etalon (110). An optical array (120) having a plurality of detectors (130) are provided at the exit surface of the etalon. The spacing between the detectors depends in part on the number of detectors provided in the detector array and the amount of discrimination required (col. 4, lines 21-65).

The invention of independent claim 1 is directed to a device for determining frequency of a laser producing an output light beam having a laser frequency. The device comprises a fringe-producing optical element to generate an interference pattern from light derived from the output light beam. The fringe-producing optical element is a non-parallel etalon and the interference pattern defines a pattern period. A detector unit is disposed to detect the interference pattern. The detector unit includes at least three detector elements disposed to detect respective portions of the pattern period. A control unit is coupled to receive detection signals from the detector unit and is adapted to generate a laser frequency control signal for controlling the laser frequency.

To anticipate a claim, the reference must teach every element of the claim. "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). "The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). Therefore, all claim elements, and their limitations, must be found in the prior art reference to maintain a rejection based on 35 U.S.C. §102. Applicants respectfully submit that Ackerman does not teach every element of independent claim 1, and therefore fails to anticipate claim 1.

In particular, Ackerman teaches only the use of a Fabry-Perot etalon, and fails to teach the use of a non-parallel etalon.

Accordingly, since Ackerman fails to teach all the elements of amended claim 1, claim 1 is not anticipated by Ackerman.

Likewise, independent claims 26 and 34 also include a non-planar etalon, and these claims are likewise also not anticipated by Ackerman.

Dependent claims 2-5, 7, 16, 19-21, 27-30, 37, 38 and 40, which are dependent from independent claims 1, 26 and 34, were also rejected under 35 U.S.C. §102(e) as being unpatentable over Ackerman. While Applicants do not acquiesce with the particular rejections to these dependent claims, it is believed that these rejections are moot in view of the remarks made in connection with independent claims 1, 26 and 34. These dependent claims include all of the limitations of the base claim and any intervening claims, and recite additional features which further distinguish these claims from the cited references. Therefore, dependent claims 2, 5, 7, 16, 19-21, 27, 30, 37 and 40 are also in condition for allowance.

Regarding claims 3 –5 and 30, Applicants respectfully assert that Ackerman fails to teach the particular separation between the detector elements as claimed, and also assert that Ackerman fails to mention any relationship between the period of the interference pattern and the detector spacing. Furthermore, Applicants assert that the claimed relationships between detector spacing and interference pattern period are not inherent, and request that the Examiner provide an explanation as to why the claimed relationships are inherent.

Regarding claims 16 and 40, Ackerman does not teach that the detector unit is disposed to detect the periodic interference pattern reflected from the fringe-producing optical element. Instead, Ackerman clearly shows that the detector array is disposed on the other side of the FP etalon from the light source, and so the interference pattern detected by the detector array is transmitted through the FP etalon, not reflected by the etalon.

Regarding claims 20 and 21, Ackerman fails to teach that the control unit generates a signal indicative of laser power from the detection signals generated by the

detector elements that detect the interference pattern. Instead, Ackerman teaches that a separate power monitor (element 150, FIG. 4) is used to generate a power signal.

Rejections under 35 U.S.C. § 103

Claims 6, 8, 9, 16-25, 31-33, 35-36, 40-45 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Ackerman.

Three criteria must be met to establish a *prima facie* case of obviousness. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference. Second, there must be a reasonable expectation of success. Finally, the prior art reference, or combination of references, must teach or suggest all the claim limitations. MPEP § 2142. Applicants respectfully traverse the rejections since the prior art fails to disclose all the claim limitations, and the modifications of the cited art proposed by the Examiner would not be known to one of ordinary skill.

Claim 16 is rejected under 35 U.S.C. § 102 and has been discussed above. Ackerman teaches that the detector array is positioned to detect the interference pattern transmitted through the etalon, at the exit surface (114) (col. 4, lines 41-43), rather than the reflected interference pattern. In fact, Ackerman teaches that it is preferable to have the detector array contacting the exit surface of the FP etalon (col. 4, lines 43-45). It would be impossible to have the detector contact the entrance surface of the FP etalon to detect the reflected interference spectrum, since the detector would block the light from entering the etalon.

Claims 20 and 21 were rejected under 35 U.S.C. § 102 and have been discussed above. Applicants further emphasize that there is nothing in Ackerman that would suggest to one of ordinary skill in the art that the signals generated by detecting portions of the interference pattern could also be used to generate a signal indicative of power output from the laser. In fact, Ackerman teaches the use of a separate power monitor (FIG. 4, element 150), and makes no mention of the ability to make a power measurement using only the detector array.

It is pointed out that the omission of an element and the retention of its function is an indicia of unobviousness *In re Edge*, 359, F.2d 896; 149 USPQ 556 (CCPA, 1966),

MPEP 2144.04.II.B. In this situation, Ackerman teaches the use of a detector array to detect the interference pattern and a separate power monitor to detect the output power. The present invention is directed to the use of at least three detector elements to i) detect the interference pattern and ii) monitor the power. Thus, the inventions of claims 20 and 21 permit the detection of the output power without the use of a separate power monitor. Under the criteria set forth in *In re Edge*, this is not obvious.

New Claims

New claim 46 has been added to depend from independent claim 34. New independent claim 47, and dependent claim 48 have been added. It is believed that these new claims are also allowable, in view of the preceding discussion.

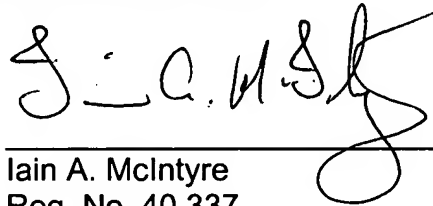
Conclusions

In view of the amendments and reasons provided above, it is believed that all pending claims are in condition for allowance. Applicant respectfully requests favorable reconsideration and early allowance of all pending claims.

If a telephone conference would be helpful in resolving any issues concerning this communication, please contact Applicant's attorney of record, Iain A. McIntyre at 952-253-4110.

Respectfully submitted,

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